

**Notice of Allowability**

Application No.

10/662,840

Examiner

Mahmoud Gimie

Applicant(s)

ELLIES ET AL.

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**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to filing on 9/15/2003.
2. ☒ The allowed claim(s) is/are 1-20.
3. ☒ The drawings filed on 15 September 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
  1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date 9/15/03
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

### REASONS FOR ALLOWANCE

The following is an examiner's statement of reasons for allowance: The primary reason for allowance of claims 1, 12 and 15-19 is the inclusion of the limitations of -

"Estimating an initial temperature of the fuel injector tip; calculating a steady state temperature of the fuel injector tip; determining a filter coefficient as a function of a rate of airflow into the engine', and predicting the FITT as a function of the initial temperature and the steady state temperature" in claim 1;

" Calculating a steady state temperature of the fuel injector tip as a function of at least an air temperature and a current temperature of an engine coolant, determining a filter coefficient as a function of a rate of airflow into the engine, and predicting the FITT by filtering the steady state temperature into the FIIT at a rate determined by the filter coefficient." in claim 12;

" Estimating an initial temperature of the fuel injector tip as a function of a ratio between a shutdown injector temperature and a shutdown temperature of an engine coolant, wherein the ratio is adjusted as a function of a soak time of the engine calculating a steady state temperature of the fuel injector tip as a function of at least an air temperature and a current temperature of the engine coolant', determining a filter coefficient as a function of a rate of airflow into the engine, and predicting the FIIT as a function of the initial temperature and the steady state temperature" in claim 15;

" means for estimating an initial temperature of the fuel injector tip; means for calculating injector tip; a steady state temperature of the fuel means for determining a filter coefficient as a function of a rate of airflow into the engine; and means for predicting the FITT as a function of the initial temperature and the steady state temperature, wherein the steady state temperature is filtered into the FITT- at a rate determined by the filter coefficient." in claim 16;

" A first module configured to estimate an initial temperature of the fuel injector tip; a second module configured to calculate a steady state temperature of the fuel injector tip; a third module configured to determine a filter coefficient as a function of a rate of airflow into the engine; and a fourth module configured to predict the FITT as a function of the initial temperature and the steady state temperature" in claim 17;

" A first module configured to estimate an initial temperature of the fuel injector tip; a second module configured to calculate a steady state temperature of the fuel injector tip; a third module configured to determine a filter coefficient as a function of a rate of airflow into the engine; and a fourth module configured to predict a fuel injector tip temperature (FITT) as function of the initial temperature and the steady state temperature" in claim 18; and

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"An estimating module configured to estimate an initial temperature of the fuel injector tip; a calculating module configured to calculate a steady state temperature of the fuel injector tip; a determining module configured to determine a filter coefficient as a function of a rate of airflow into the engine; and a predictor module configured to calculate a fuel injector tip temperature (FIIT) a function of the initial temperature and the steady state temperature" in claim 19 that the prior art of record neither taught nor suggested.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mahmoud Gimie whose telephone number is 571-272-4841. The examiner can normally be reached on Tuesday-Friday between 7 a.m. -3:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Henry Yuen can be reached on 571-272-4856. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MG

 12/3/04  
MAHMOUD GIMIE  
PRIMARY PATENT EXAMINER  
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